IFW
3671 AF S

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, P.O. Box 1450, Alexandria, VA 22313 on the date indicated below.

Jodi A. Calderon Date: 6-14-04

Jodi A. Calderon

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.: 09/508,356 Examiner: Addie, R.W.

Filing Date: March 9, 2000 Group Art Unit: 3671

Inventor: Martin Greppmair

For: *Working Machine With Reduced Upper Mass Vibrations*

APPEAL BRIEF UNDER 37 CFR 1.192

Mail Stop Appeal Briefs - Patents
Commission for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellant submits in *triplicate* its brief in support of an appeal to the Board of Patent Appeals and Interferences together with a check in the amount of $330.00 for payment of the $330.00 large entity fee associated with the filing of this brief in support of an appeal. The Director is authorized to direct payment of any additional fees associated with this or any other communication, or credit any overpayment, to Deposit Account 50-1170.

This is an appeal from the Examiner's decision dated March 17, 2004 rejecting claims 1, 2, 5 and 6 for the second or subsequent time under 35 U.S.C. § 103(a) as being obvious over disclosure of Linz in view of the teaching of Darda; and rejecting claims 3, 4, 7 and 8 for the second or subsequent time under 35 U.S.C. § 103(a) as being obvious over the disclosure of Linz in view of the teaching of Darda and the teaching of Pauliukonis. Appellant earnestly solicits the Board to reverse the Examiner's remaining rejections for the reasons that follow.

TABLE OF CONTENTS

A. STATEMENT AS TO REAL PARTY IN INTEREST

The real party in interest is Wacker Construction Equipment, AG (Wacker), a German corporation with headquarters in Munich, Germany. Wacker obtained its interest in this application by virtue of an assignment dated October 30, 2002 and duly recorded in the USPTO's recording system at Reel 013496, Frame 0853.

B. STATEMENT AS TO RELATED APPEALS AND INTERFERENCES

No related appeals or interferences are known to Appellant.

C. STATEMENT AS TO STATUS OF CLAIMS

Upon entry of the Amendment filed February 23, 2004, the status of the claims present in this application will be as follows;

- Claims 9-15 would be canceled.
- Claims 1-8 would stand rejected and subject to appeal.

D. STATEMENT AS TO STATUS OF AMENDMENTS

An amendment was formally filed after the last rejection mailed on December 22, 2003. In an Advisory Action dated March 17, 2004, the Examiner indicated that the amendment would be entered upon filing of an appeal. Hence, upon the filing of this Appeal Brief, the Amendment of February 23, 2004 will be entered.

E. SUMMARY OF INVENTION

1. Description of the Problem Solved by the Invention

Tamping machines are widely used for compacting soil for various purposes. A typical tamping machine of this type includes an upper mass coupled to a lower, working mass via a spring assembly. The upper mass includes a motor and a crank mechanism. The crank mechanism typically comprises one or more structural elements, including, for example, a connecting rod, a piston pin, a guide piston, and/or a piston guide. The working mass typically includes a working mass such as a compacting plate. The motor

drives the crank mechanism into an oscillating movement that is transmitted vertically along the spring assembly to the mass, thus driving the working mass to oscillate and compact the soil that is contacted by the plate. The machine is manually guided in its operation by a guide handle attached to the upper mass.

Substantial vibrations are generated in the upper mass during operation of a tamping machine. Some of these vibrations are transmitted generally horizontally through the guide handle, making it difficult for the operator to hold onto and effectively control the tamping device. The magnitude of these vibrations is directly dependent on the weight of the upper mass, which typically comprises approximately two-thirds of the weight of the machine. Notably, the crank mechanism is formed from steel and, therefore, is responsible for a large percentage of the weight of the upper mass.

2. Solution to the Problem

The invention resides in the provision of a tamping machine having a crank mechanism structural element that is formed of reduced-weight material. Surprisingly, it has been discovered that this selection eliminates generation of horizontal vibrations in the upper mass during machine operation, greatly increasing the ease of operation of the tamping machine. Specifically, the structural element of the crank mechanism is formed from a material, such as aluminum or plastic, that his a density lower than that of steel. The use of the relatively low-density material for the crank mechanism's structural element also results in a reduction in the weight of the overall machine, which results in the ability to use wider or heavier tamping plates on the tamping machine with the same ultimate acceleration of the working mass. Also, the weight lost by forming these components of the upper mass from light weight materials can simply be repositioned in the design of the upper mass, resulting in a quieter upper mass during operation of the machine.

Referring to Fig. 1 of the present application by way of non-limiting example, the connecting rod 5, the piston pin 6, the guide piston 7 and the piston guide 16 of a tamping machine are each formed of a reduced weight material, such as plastic, including carbon fiber or glass fiber reinforced polyamide. Other materials which can be used include

lighter than-steel metal alloys, such as aluminum. Combinations of plastics and alloys may also be used. For instance, the connecting rod 5 may be formed of a plastic in order to have some elasticity and spring properties.

In a preferred embodiment, the piston guide 16 integrates the steel piston guide known from prior art tamping machines, the expansion bush, and the expansion plug. It also provides a damping capability for the upper mass because the piston guide 16 is formed from a plastic with an integrated dampening bushing that damps the transmission of vibrations to the surrounding structures.

In short, the use of a lighter-than steel material for the connecting rod 5, piston pin 6, guide piston 7 and/or piston guide 16 enables the formation of a tamping machine in which vibrations along the horizontal axis to the hands of the operator are eliminated, and in which the overall weight of the machine is greatly reduced allowing for greater ease of operation of the machine.

F. STATEMENT AS TO ISSUES PRESENTED

1) whether or not the rejection of claims 1, 2, 5 and 6 under 35 U.S.C. §103(a) as being obvious over Linz in view of the teachings of Darda is improper and should be reversed; and

2) whether or not the rejection of claims 3, 4, 7 and 8 under 35 U.S.C. §103(a) as being clearly obvious over Linz in view of the teachings of Darda and the teachings of Pauliukonis is improper and should be reversed.

G. GROUPING OF CLAIMS

Claims 1 and 5 stand or fall together and separately from the remaining claims.

Claim 2 and 6 stand or fall with claims 1 and 5, respectively.

Claims 3 and 7 stand or fall together and separately from the remaining claims.

Claims 4 and 8 stand or fall together and separately from the remaining claims.

H. ARGUMENT

1. The Rejection of Claims 1, 2, 5 and 6 as being Obvious over Linz in view of the Teaching of Darda is Improper and Should be Reversed.

If the Examiner's obviousness rejection is to be sustained, the Board must be convinced that the Examiner has met his burden of establishing a *prima facie* showing of obviousness. *In re Warner*, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968), MPEP §2142. In the context of the obviousness rejection presently at issue, the Board must be convinced that the Examiner has satisfied the three basic criteria to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

As Appellant will now demonstrate, 1) the Examiner failed to meet his burden and 2) fundamental differences between the combined teachings of the cited references and the invention as defined by the rejected claims preclude the Examiner from meeting this burden.

The Examiner has failed to establish a *prima facie* case of obviousness because, *inter alia*, there is no teaching or suggestion to combine or modify the references to produce the claimed invention. Furthermore, even if the references were combined, the invention would not result.

Claims 1 and 5

Claims 1 and 5 are of similar scope, with claim 5 being written in better conformance with preferred U.S. practice than claim 1. We will address claim 5 by way of example.

Referring to the Appendix, claim 5 defines a tamping machine that includes *inter alia*:

> a crank mechanism that has at least one structural element which is linearly reciprocable and which is produced from a material having a density lower than that of steel, and wherein the structural element comprises at least one of a connecting rod, a piston pin, a guide piston, and a piston guide.

The rejection of claims 1 and 5 as unpatentable over Linz in view of Darda cannot be sustained because the Examiner has failed to establish a *prima facie* case of obviousness.

The Examiner correctly recognizes that Linz fails to show a crank mechanism having at least one structural element formed form a material, the density of which is lower than that of steel. However, the Examiner fails to recognize that Darda cannot cure this deficiency.

Referring to Fig. 3, Linz broadly discloses a tamping machine 1 in which a compressing tool 5 is driven by a motor through a crank drive 2-8. The crank drive includes a crank gear 2 attached to a connecting rod 3. The connecting rod 3 is attached opposite the gear 2 to a plunger disc 4 that is slidably guided for vertical movement by several guide rods 6 that extend through the plunger disc 4. The compressing tool 5 is attached to the bottom of the guide rods 6. The disc 4 can move along the guide rods 6 to alternatively compress and relax springs 9, 10 and 11 to drive the compressing tool 5 to reciprocate. Assuming for the sake of argument that these components correspond to the claimed working mass, upper mass, crank mechanism, etc., the Linz fails to disclose or suggest that any structural element of its crank mechanism should or even could be formed of a material having a density less than that of steel. The Examiner relies on Darda to allegedly cure this deficiency. That reliance cannot support a finding *prima facie* obviousness.

Darda discloses a rock breaking apparatus including a piston rod 3 that is guided downwardly through a cylinder cover element 12 by a guide member 9 that surrounds the piston rod 3. A slider wedge 26 is received in and engaged with the piston rod 3 by a pin 28 so as to reciprocate with the piston rod 3. The slider wedge 26 includes a lower end

31 configured to contact and break the rock upon reciprocation of the piston rod 3 and slider wedge 26. The cylinder cover element 12 engages a hydraulic cylinder 1 in a manner that permits a tubular element 18 to be affixed over the cover element 12 to the cylinder 1. The tubular element 18 includes an inner bore 19 aligned with the interior of cylinder cover element 12 to provide additional guidance for the guide element 9 and wedge 26 as they are oscillated by the movement of a piston rod 3. The tubular element 18 is formed of aluminum.

As will now be discussed, it would not have been obvious to combine Linz with Darda to produce the claimed invention.

a. Nonanalogous Art

One of the critical subcomponents of the *Graham v. Deere* inquiry is to determine the scope and content of the prior art. Nonanalogous prior art cannot be relied upon to make a rejection under 35 U.S.C. §103(a). MPEP §2141.01(a). For a reference to be analogous art, that reference must either be in the same field of applicant's endeavor or, if not, then it must be reasonably pertinent to the particular problem with which the inventor is concerned. MPEP §2141.01(a) and *In re Clay,* 23 USPQ2d 1051, 1060-61 (Fed. Cir. 1992). In the present case, Appellant's field of endeavor is tamping or compacting machines, whereas Darda's field of endeavor is rock breaking. They are clearly not the same field of endeavor.

On page 5 of the Final Rejection, the Examiner alleges that Applicant submits that Darda is not analogous art by indicating that the invention is also applicable to a compression hammer. However, a compression hammer, like a tamping machine, operates by vertically reciprocating a workpiece against a work surface. The difference is a compression hammer breaks the impacted surface, whereas a tamping machine tamps that surface. In contrast, the presser checks of the wedge 26 forming the workpiece of the rock breaking device disclosed by Darda operates by moving laterally or outwardly to split rocks. The design characteristics of the two types of machines are entirely different.

As to the problem addressed, Appellant is concerned primarily with eliminating the vibrations created by an upper mass of a tamping or compacting machine in a non-

vertical direction by creating certain oscillating structural components of the machine of a material having density a less than that of steel. By eliminating these non-vertical vibrations, the machine can more easily be operated, and reductions in the overall weight and cost for assembling the machine can be achieved.

In sharp contrast, Darda is concerned primarily with facilitating presser cheek and slider wedge replacement. See, e.g., Col.. 1, lines 38-41. Darda never addresses or contemplates the reduction or elimination of vibration in the machine to increase the ease of operation of the machine by an individual, or even the particular hydraulic or pneumatic operating mechanism for the rock breaking machine. As such, it is not reasonably pertinent to the problem addressed by Appellant.

Hence, Darda represents nonanalogous art. The Examiner's reliance on it therefore was improper, and the rejection must be reversed for this reason alone.

b. The Examiner Has Mischaracterized Darda and its Relevance to the Claimed Invention

The Examiner contends that tubular element 18 in Darda corresponds to the claimed structural element. Final Rejection, page 3. However, that is not the case.

Specifically, in Darda, the tubular element 18 is not a structural element of a crank mechanism including at least one of a connecting rod, a piston pin, a guide piston and a piston guide as required by claim 5[1]. In fact, the tubular element 18 does not even remotely functionally or structurally resemble any of the specific structural elements of a crank mechanism referenced in claims 1 and 5 in the list. The tubular element 18 instead forms only an extension of the exterior construction or housing for the device in order to provide a guide surface for the piston rod 3, guide member 9 and slider wedge 26. Thus, the tubular element 18 does not move during the operation of the device. It is merely a stationary housing that encases other components, just as Linz' machine has a housing that encases the crank gear 2, the connecting rod 3, the disc 4, the guide rods 6, etc. A less schematic embodiment of Linz' housing is illustrated in Fig. 7 of Linz and is denoted

[1] Claim 1 uses slightly different language, requiring that the structural element be from the group comprising a connecting rod, a piston pin, a guide piston and a piston guide. The ultimate scope of this open-ended clause is highly similar, if not identical, to that of the corresponding clause of claim 5.

by reference numeral 63. Absent any contrary disclosure, the internal structural components of Darda's tubular housing 18 are presumably formed from the standard material used in such devices, i.e., steel. Logically, if one were to carry the concepts addressed in Darda forward to Linz, Darda (at best) would have suggested forming of the housing 1 in Linz from aluminum, but not any structural elements of crank mechanism falling within claims 1 and 5. The resultant modification would not have produced the claimed invention. Claims 1 and 5 therefore are nonobvious for this additional reason. MPEP §2143.03 (all claim limitations must be taught or suggested).

It should be noted at this point that the Examiner states on page 6 of the Final Rejection that "Darda teaches that it is desirable to make at least one crank mechanism element or spring assembly element from a material other than steel, such as aluminum . . . Alternatively, Darda further teaches aluminum, in areas not expecting to experience high specific pressures." These statements define no basis of the fact. Hardened stainless steel is specifically mentioned only with respect to the most highly-stressed components of the system. Aluminum is cited only in conjunction with the housing. No material is disclosed for the remaining components, of which there are many. At most, Darda would have suggested using standard materials for such components, i.e., steel.

c. Darda Teaches Away from Invention

As indicated above, the invention is concerned with constructing a tamping or compacting machine with oscillating components formed of materials having densities less than steel in order to eliminate the vibrations in non-vertical directions which make prior art machines of this type difficult to operate. As indicated in Section (a) above, Darda focuses only on an alignment mechanism for use in rock breaking machines. The alignment mechanism includes the formation of a tubular element 18 for providing only a proper alignment of the reciprocating portions of the machine. Further, Darda was clearly of the opinion that aluminum was relatively unstable for use by itself as the tubular element 18, such that the aluminum tubular element 18 must be reinforced with a protective steel ring 25 to improve the mechanical stability of the lower end of the tubular element 18 (column 4, lines 27-30). Thus, it is apparent that Darda believed that

aluminum is unstable for use as a major structural element of a machine. Further, the teaching in Darda regarding the use of aluminum is restricted to the mechanical stability of the tubular element 18 without any reference whatsoever to the ability of aluminum to function in a high vibration environment as a vibration reducing-material for the machine. Thus, the Examiner has not demonstrated that forming the oscillating components of the tamping machine in Linz from aluminum and reinforcing these components with protective steel rings would increase the stability, i.e., reduce the non-vertical vibrations, of the tamping machine in Linz. Further, the replacement of the oscillating components formed from materials less dense than steel of claims 1 and 5 with aluminum components reinforced with steel rings will also not appear to significantly reduce the overall weight of the tamping machine as any weight reduction achieved by the use of aluminum would be overcome by the presence of the steel rings. Darda therefore teaches directly away from the present invention. Such a teaching away is a *strong indicia* of nonobviousness. See MPEP §2146 and cases cited therein including, *In re Gurley*, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) and *In re Grasselli*, 218 USPQ 769, 779 (Fed. Cir. 1983).

For the foregoing reasons, claims 1 and 5 are believed to be nonobvious over the prior art relied upon in the rejection and is in condition for allowance.

Claims 1 and 5 therefore clearly are not obvious over Linz in view of the teaching of Darda, and the rejection thereof must be reversed.

Claims 2 and 6

Claims 2 and 6 stand or fall with claims 1 and 5, respectively.

Claims 3 and 7

Each of claims 3 and 7 contains the essential limitations of claim 1 and 5, respectively, and each additionally requires that the material having a density lower than steel be plastic.

The rejection of claims 3 and 7 as unpatentable over Linz in view of Darda and Pauliukonis cannot be sustained because the Examiner has failed to establish a *prima facie* case of obviousness.

The Examiner correctly recognizes that Linz and Darda fail to show a tamping machine including a *plastic* structural element of a crank mechanism. However, the Examiner fails to recognize that Pauliukonis cannot cure this deficiency.

Pauliukonis relates not to a tamping or compacting machine, but to a generic plastic actuating cylinder. The cylinder is relevant to the claimed invention (if at all) only in that portions of its device are formed of plastic. However, the cylinder of Pauliukonis is not disclosed as one of the oscillating structural elements of a tamping machine or any remotely analogous device. Nor is there any suggestion or motivation to apply any if Pauliukonis' teachings to such a structural element.

Referring to Fig. 1, Pauliukonis discloses a one-piece molded cylinder housing 1 that encases a linearly moveable a piston 14 and piston rod 16. The rod 16 extends outwardly from the housing 1 through a receiver end 10 that encloses the interior of the cylinder housing 1 and allows fluid to flow into and out of the housing 1 to operate the cylinder. The cylinder housing is formed from plastic.

As will now be discussed, it would not have been obvious to combine Pauliukonis with Linz and Darda to produce the claimed invention.

a. Nonanalogous Art

As stated in Section above, for a reference to be analogous art, that reference must either be in the same field of applicant's endeavor or, if not, then it must be reasonably pertinent to the particular problem with which the inventor is concerned. MPEP §2141.01(a) and *In re Clay,* 23 USPQ2d 1051, 1060-61 (Fed. Cir. 1992). In the present case, Appellant's field of endeavor is a tamping or compacting machine including oscillating structural elements which are formed from lighter weight materials, i.e., plastic, to eliminate non-vertical vibration during the operation of the machine and reduce the weight of the machine. In contrast, Pauliukonis discloses a generic plastic actuating cylinder for use in hydraulic or pneumatic operating systems. Ground compacting

machines of the claimed type lack any such cylinders. Pauliukonis clearly is not from the same field of endeavor as the invention.

As to the problem addressed, Appellant is primarily concerned with eliminating non-vertical vibration in a tamping or compacting machine in order to ease the operation of the machine. In sharp contrast, Pauliukonis is concerned only with reducing the manufacturing costs of an actuating cylinder:

> The all-metal piston rod assembly normally consists of a piston to which an actuating rod is secured permanently either by welding, soldering or simply bolting together, the latter requiring special parts such as extra seals and nuts. The above described cylinder manufacturing technique representing the present state of art is time consuming, complicated and costly.
>
> The present invention provides a cylinder which is mass produced utilizing process equipment and techniques known to reduce manufacturing costs. It is obviously desirable to provide cylinders of this type which are inexpensive and perform equally well in service. It is also desirable that in the manufacture of such cylinders the applicability of available plastic or synthetic rubber compounds be thoroughly explored.

Col. 1, lines 13-28.

There is no mention whatsoever of the need to eliminate horizontal vibrations in a manually guided machine. As such, it is not reasonably pertinent to the primary problem addressed by Appellant.

Hence, Pauliukonis represents nonanalogous art. The Examiner's reliance on it therefore was improper, and the rejection of claims 3 and 7 must be reversed for this reason alone.

b. The Examiner has Mischaracterized Pauliukonis and Its Relevance to the Claimed Invention

The Examiner contends that piston 14 and piston shaft 16 correspond to the claimed structural element. Final Rejection, page 3. However, that is not the case.

Specifically, in Pauliukonis, the piston assembly is positioned in the housing 1 for operation as a dual actuating cylinder in response to changing fluid pressures within the housing 1. Thus, the linear movement of the piston 14 within the housing 1 is not caused by the movement of the piston rod 16, but only by the differential in pressure between the fluids present on opposite sides of the piston 14. Thus, the piston 14 and the rod 16 do not need to provide any vibration-dampening properties with respect to the operation of the cylinder as the fluids present in the cylinder already accomplish this. Moreover, unlike the claimed crank mechanism, Pauliukonis' piston and piston shaft do not and cannot be used to drive another structural element of an industrial machine. A hydraulic of pneumatic piston clearly is subject to dramatically lower mechanical stresses than a crank mechanism of a tamping machine. There is no indication whatsoever in Pauliukonis that it would even be possible to provide plastic structural crank mechanisms components for a tamping machine or remotely similar device. It certainly lacks any motivation to form such components out of plastic. In short, the design criteria are entirely different for the two devices. The teachings are totally inapplicable.

Further, any vibrations that would be felt by the piston 14 and rod 16 are dissipated by other means than piston 14 and the rod 16. More specifically, referring to Figure 4, Pauliukonis discloses a high pressure embodiment of its cylinder in which the piston rod assembly 7 that includes a piston rod 9 that is connected to a rubber piston 24 that includes impact-absorbing pegs 8. See, e.g., Col. 2, lines 57-67. Thus, any vibrations encountered by the piston 24 and piston rod 9 as a result of the piston 24 striking the housing 1 is absorbed and dissipated by the pegs 8, and not by the piston 24 or rod 9. Even those vibrations would be vertical in nature, *not* horizontal. Further, if the concept of damping vibration by incorporating impact-absorbing pegs within the piston was carried forward from the piston to the tamping machine, it would (at best) have suggested placing these pegs within the tamping machine to reduce the vibration

transmitted through the machine in the appropriate direction. It would in no way suggest forming a reciprocating structural element of a crank mechanism, such as a connecting rod, a piston pin, a guide piston, and/or a piston guide, from plastic. As such, the resulting modification would not have produced the claimed invention. Claims 3 and 7 are therefore nonobvious for this additional reason. MPEP §2143.03 (all claimed limitations must be taught or suggested).

c. Pauliukonis Teaches Away From Invention

As indicated above, the invention is concerned with constructing a tamping or compacting machine with oscillating elements formed of materials having densities less than steel, such as plastic, in order to eliminate the vibrations and non-vertical directions which make prior art machines of this type difficult to operate. As indicated in Section (a) above, Pauliukonis focuses only on forming various components of an actuating cylinder from plastic in order to reduce the cost of manufacturing the cylinder. Further, Pauliukonis was clearly of the opinion that plastic was unsuitable by itself for dampening any vibrations encountered by the piston and piston rod during the operation of the cylinder. Pauliukonis instead considered it necessary to install impact absorbing *rubber* pegs 8 in the construction of the piston 24. Thus, it is apparent that Pauliukonis teaches away from the proposed combination of references as it leaves the impression that the use of plastic in forming a structural element that oscillates is not capable of eliminating vibrations from being transmitted through the element as sought by Appellant's claims 3 and 7.

For the foregoing reasons, claims 3 and 7 are believed to be nonobvious over the prior art relied upon in the rejection and is in condition for allowance.

Claims 4 and 8

Claim 4 and 8 contain the essential limitations of claims 1 and 5, respectively, and further requires that the piston guide be produced from plastic in one piece together with at least one dampening bushing.

The rejection of claims 4 and 8 as unpatentable over Linz in view of Darda and Pauliukonis cannot be sustained because the Examiner has failed to establish a *prima facie* case of obviousness.

First, claims 4 and 8 depend from claims 3 and 7, respectively. The arguments presented above in connection with claims 3 and 7 therefore apply with equal force and effect. In addition, *nothing* in the cited references suggests providing a piston guide produced from plastic in one piece together with at least one dampening bushing in addition to or in association with a tamping machine.

Pauliukonis' piston assembly lacks *any* dampening bushing. Nor has the Examiner identified any dampening bushing in the other cited prior art. Nor has he indicated that Pauliukonis suggests that it is even **possible** to form a dampening bushing integrally with a piston guide. As such, it is patently clear that the Examiner's rejection of claims 4 and 8 is nothing more than an impermissible hindsight reconstruction of Appellant's invention, gleaned from Appellant's own disclosure.

In summary, Linz in view of Darda and Pauliukonis fails to teach or suggest each and every limitation of claims 3, 4, 7 and 8. Reversal of the Examiner's rejections of claims 3, 4, 7 and 8 as being obvious over the references of record therefore is believed to be in order and is earnestly solicited.

2. Conclusion

Reversal of all rejections and allowance of all claims are therefore believed to be in order and are earnestly solicited.

Respectfully submitted,

Timothy E. Newholm
Registration No. 34,400

Dated: June 14, 2004

BOYLE FREDRICKSON NEWHOLM
STEIN & GRATZ S.C.
250 Plaza, Suite 1030
250 East Wisconsin Avenue
Milwaukee, WI 53202-4232
Telephone: (414) 225-9755
Facsimile: (414) 225-9753

APPENDIX

CLAIMS

1. (Previously Amended) A tamping machine for soil compaction, comprising:

a working mass which is driven in a tamping manner and which can be driven linearly back and forth, via a crank mechanism and a spring assembly, by a motor belonging to an upper mass, wherein the crank mechanism has at least one structural element which is moveable linearly back and forth and which is produced from a material, the density of which is lower than that of steel, and wherein the structural element which is moveable linearly back and forth is a structural element from the group comprising a connecting rod, a piston pin, a guide piston, and a piston guide.

2. (Original) The tamping machine as claimed in claim 1, wherein the material is an aluminum alloy.

3. (Currently Amended) The tamping machine as claimed in claim 1, wherein the material is a plastic.

4. (Previously Amended) The tamping machine as claimed in claim 1, wherein the piston guide is produced from plastic in one piece together with at least one dampening bushing.

5. (Original) A tamping machine for soil compaction, comprising:

a working mass which is linearly reciprocatable in a tamping direction to tamp soil;

a crank mechanism and a spring assembly which drive said working mass to linearly reciprocate in the tamping direction; and

an upper mass including a motor operatively coupled to the crank mechanism; wherein

the crank mechanism has at least one structural element which is linearly reciprocatable and which is produced from a material having a density lower than that of steel, and wherein the structural element comprises at least one of a connecting rod, a piston pin, a guide piston, and a piston guide.

6. (Original) The tamping machine as claimed in claim 5, wherein the material is an aluminum alloy.

7. (Original) The tamping machine as claimed in claim 5, wherein the material is a plastic.

8. (Twice Amended) The tamping machine as claimed in claim 5, wherein the piston guide is produced from plastic in one piece together with at least one dampening bushing.